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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,755	04/11/2001	Edward J. Mack SR.	55531 (45676)	2901

21874 7590 09/29/2004
EDWARDS & ANGELL, LLP
P.O. BOX 55874
BOSTON, MA 02205

EXAMINER

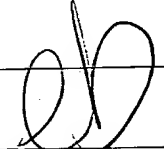
MCAVOY, ELLEN M

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/833,755	Applicant(s) MACK ET AL.	
	Examiner Ellen M McAvoy	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-85 is/are pending in the application.
4a) Of the above claim(s) 70-81 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40 is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-31, 33, 34, 37, 38, 41, 42, 45-48, 50, 52-69 and 82-85 is/are rejected.
- 7) ☒ Claim(s) 19, 32, 35, 36, 39, 43, 44, 49 and 51 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

Election/Restrictions

Upon further consideration, non-elected claim 82 (Group III) is rejoined with elected claims 1-69 and 83-85 (Group I). Claims 70-81, drawn to a method of forming a bearing composition, are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 05 February 2003. Applicants' argument that the subject matter is overlapping and a search would not place an undue burden on the office is not deemed to be persuasive since method claim 70 is substantially broader in scope and would require additional searching. Upon further consideration, the Election of Species Requirement mailed on April 11, 2003 is withdrawn.

Claim Rejections - 35 USC § 112

Claims 5 and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites "wherein the first additive has a density of at least about density of at least about" which is unclear.

Independent claim 45 includes the trade names Thermalgraph DKD fibers, Thermalgraph DKA fibers and Dialead K223HG fibers which renders the claim indefinite since the trade names are used as a limitation to identify or describe a particular material or product. See MPEP 2173.05(u).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18, 20-31, 33-34, 37-38, 41-42, 46-48, 50, 52-69, 82-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al (5,821,204), Kato et al (5,906,967) and Kato et al (5,998,339).

Kato et al (5,821,204) ["Kato '204"] discloses a thrust bearing having a sliding surface composed of a resin composition which comprises 10 to 45% by weight of a carbon fiber, 0.1 to 30% by weight of a polytetrafluoroethylene, 0.1 to 20% by weight of a graphite having an oil absorption of 70 to 500 ml/100g, and the balance being substantially an aromatic polyetherketone resin such as polyetheretherketone, wherein the total content of the carbon fiber, the polytetrafluoroethylene and the graphite is not more than 65% by weight. See column 1, line 58 to column 2, line 15. Kato '204 teaches that any of the pitch-based carbon fibers having a length of 0.1 to 10 mm may be used in the invention. See column 3, lines 4-17. The examiner is of the position that Kato '204 meets the limitations of independent claim 1 which is drawn to a plastic article having a bearing surface comprising a polymeric matrix material such as a polyetheretherketone resin, and a first additive that is a lubricious reinforcing fiber having a thermal conductivity of 50 W/m °K. Although the thermal conductivity value is not given for the carbon fibers of Kato '204, the examiner is of the position that since pitch-based carbon

fibers are taught by applicants as suitable for the reinforcing fiber component, the thermal conductivity value is the same or similar for the pitch-based carbon fibers taught by Kato '204. Likewise, other numerical limitations in the depending claims not set forth in Kato '204 such as tensile strength, tensile modulus, coefficient of thermal expansion and density are expected to be the same or similar since the components of the plastic article may be the same.

Kato et al (5,906,967) ["Kato '967"] discloses a non-sticking sliding part molding composition which comprises a mixture of a fluoro-resin such as polytetrafluoroethylene; a thermoplastic resin other than the fluoro-resin such as polyphenylene sulfide, polyetheretherketone, aromatic polyester, thermoplastic polyimide and polyamideimide; and 5-30 weight % of a fibrous filler such as pitch-based carbon fibers. The examiner is of the position that the molding composition of Kato '967 meets the limitations of the above rejected claims. As set forth above, although the thermal conductivity value is not given for the carbon fibers of Kato '967, the examiner is of the position that since pitch-based carbon fibers are taught by applicants as suitable for the reinforcing fiber component, the thermal conductivity value is the same or similar for the pitch-based carbon fibers taught by Kato '967. Likewise, other numerical limitations in the depending claims not set forth in Kato '967 such as tensile strength, tensile modulus, coefficient of thermal expansion and density are expected to be the same or similar since the components of the plastic article may be the same.

Kato et al (5,998,339) ["Kato '339"] disclose a wet type sliding apparatus comprising a wet type radial bearing which starts in the presence of a lubricating liquid, wherein the radial bearing has a sliding surface consisting of a resin composition comprising 10 to 45% by weight

of a carbon fiber and 0.1 to 8.5% by weight of a fluorocarbon polymer, the balance being substantially an aromatic polyetherketone resin or a polyarylene sulfide resin. See column 3, lines 39-63. Kato '339 teaches that as the carbon fiber component, there can be used any of the pitch-based, cellulose-based and polyacrylonitrile-based carbon fibers. See column 5, lines 39-45. The examiner is of the position that the wet type sliding apparatus of Kato '339 meets the limitations of the above rejected claims. As set forth above, although the thermal conductivity value is not given for the carbon fibers of Kato '339, the examiner is of the position that since pitch-based carbon fibers are taught by applicants as suitable for the reinforcing fiber component, the thermal conductivity value is the same or similar for the pitch-based carbon fibers taught by Kato '339. Likewise, other numerical limitations in the depending claims not set forth in Kato '339 such as tensile strength, tensile modulus, coefficient of thermal expansion and density are expected to be the same or similar since the components of the article may be the same.

Allowable Subject Matter

Claims 19, 32, 35, 36, 39, 43, 44, 49 and 51, which limit the lubricious reinforcing fiber to a graphitized pitch-based carbon fiber, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Independent claim 45 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

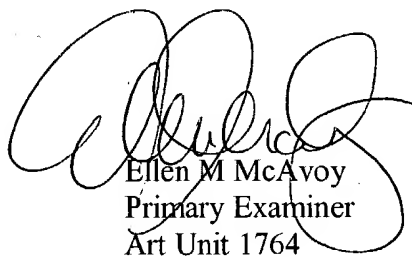
Independent claim 40 is allowed over the prior art references of record.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen M McAvoy whose telephone number is (571) 272-1451. The examiner can normally be reached on M-F (7:30-5:00) with alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ellen M McAvoy
Primary Examiner
Art Unit 1764

EMcAvoy
September 27, 2004